

REMARKS

At the outset, the Applicant appreciates the Examiner for the thorough review and consideration of the subject application. The Final Office Action of February 18, 2003, has been received and its contents carefully noted. Claims 1-7, 9-22, and 25-45 are currently pending. By this amendment, claims 1, 7, 16, 17, 29, 33, and 37-45 are amended. Support for these amendments are provided in at least Figures 1-8B and related text of the specification. No new matter has been added. Reconsideration of the rejected claims in view of the above amendments and the following remarks is respectfully requested.

Misnumbered Claims

Misnumbered claims 37-46 have been amended have been renumbered to claims 36-45 in order to reflect Examiner's renumbering.

Rejections Under 35 U.S.C. § 112, second paragraph

Claims 1-10 and 16 stand rejected under 35 U.S.C. § 112, second paragraph as being allegedly indefinite. Applicants respectfully traverse these rejections.

Amended claims 1 and 7 are in full compliance with 35 U.S.C. § 112, second paragraph. More specifically, "over" has been replaced --of-- in the claims and thereby clarifies the claim language. Also, claim 16 has been amended to include frame rate controller (FRC) in order to clarify the acronym.

Accordingly, Applicants respectfully request withdrawal of the 35 U.S.C. § 112, second paragraph rejection.

Double Patenting Rejections and Objections

Claim 28 is provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being allegedly unpatentable over claims 1 and 17 of co-pending Application No. 10/154,919.

The requirements for a rejection under the judicially created doctrine of obviousness-type double patenting are similar to the requirements for establishing a *prima facie* case of obviousness under 35 U.S.C. § 103. However, the exception exists that the patent principally underlying an obviousness-type double patenting rejection is not considered prior art. *In re Braithwaite*, 379 F.2d 594, 154 USPQ (CCPA 1967). As set forth in M.P.E.P. § 804(II)(B)(1), the factual inquires that are applied for establishing a *prima facie* case of obviousness under 35 U.S.C. § 103 are also employed when making an obviousness-type double patenting rejection. Accordingly, to make an obviousness-type double patenting rejection, three basic criteria must be met. First, the prior art reference (or references when combined) and a claim of the patent principally underlying the obviousness-type double patenting rejection must teach or suggest all the claim limitations. Second, there must be some suggestion or motivation in the prior art references themselves to modify the claim of the patent principally underlying the obviousness-type double patenting rejection or to combine the prior art reference teachings with the claim of the patent principally underlying the obviousness-type double patenting rejection. Third, there must be a reasonable expectation of success for the modification or combination of prior art references and the claim of the patent principally underlying the obviousness-type double patenting rejection. Further, the teaching or suggestion to make the modification or combination

and the reasonable expectation of success must both be found in the prior art, and not based on Applicant's disclosure. *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991).

Additionally, there must be particular finding as to the specific understanding or principle within the knowledge of a skilled artisan that would have motivated one with no knowledge to the claimed invention to make a combination or modification of the claim of the patent principally underlying the obviousness-type double patenting rejection. *In re Kotzab*, 217 F.3d 1365, 55 U.S.P.Q.2d 1313 (Fed. Cir. 2000). *See also* MPEP § 214.

A provisional obviousness-type double patenting rejection is identical to a non-provisional obviousness-type double patenting rejection, except that instead of a patent underlying the rejection, as in a non-provisional rejection, a patent application is underlying the rejection. Accordingly, the same standards, as discussed above, apply for a provisional rejection.

Claim 28 of the present application is directed towards a method of driving a liquid crystal display device. For example, claim 28 recites a combination of elements including, for example, "a method of driving a liquid crystal display . . . the method comprising the steps of: (a) sequentially transmitting scanning signals to the gate lines" None of these elements are disclosed in claim 1 of co-pending application. Rather, claim 1 of co-pending application is directed towards a liquid crystal display and does not recite method steps. Accordingly, the Examiner has not set forth a prima facie case of obviousness type double patenting with regard to claim 28 in view of claim 1.

Moreover, claim 28 requires "upon receipt of RGB gray scale data for displaying picture images from the outside, establishing RGB gammas based on the RGB gray scale data and

predetermined imaginative gamma curves, and generating data voltages based on the established RGB gammas" (emphasis added). Claim 17 of co-pending Application Publication No. 10/154,919 does not recite, "establishing RGB gammas based on the RGB gray scale data and predetermined imaginative gamma curves, and generating data voltages based on the established RGB gammas" as required by claim 28.

Accordingly, Applicants respectfully request withdrawal of the provisional rejection under obviousness-type double patenting as the Examiner has not established a *prima facie* case of obviousness as required by MPEP § 804.

Rejections Under 35 U.S.C. § 102

Claim 28 stands rejected under 35 U.S.C. § 102(e) as being anticipated by U.S. Patent Application Publication No. 2002/0180680 A1 issued to Moon. Applicants respectfully traverse this rejection.

Claim 28 is allowable over the applied references in that claim 28 recites a combination of elements including, for example,

- (a) sequentially transmitting scanning signals to the gate lines;
- (b) upon receipt of RGB gray scale data for displaying picture images from the outside, establishing RGB gammas based on the RGB gray scale data and predetermined imaginative gamma curves, and generating data voltages based on the established RGB gammas.

Moon does not teach at least these features.

Accordingly, Applicants respectfully request withdrawal of the rejection under 35 U.S.C. § 102(e).

Rejections Under 35 U.S.C. § 103

Claims 1-4 and 33-35 stand rejected under 35 U.S.C. § 103(a) as being allegedly unpatentable over U.S. Patent No. 5,359,342 issued to Nakai, *et al.* ("Nakai") in view of U.S. Patent No. 6,075,514 issued to Ryan, *et al.* ("Ryan"). Applicants respectfully traverse these rejections.

Claim 1 is allowable over the applied references in that claim 1 recites a combination of elements including, for example,

the color correction unit generates corrected RGB picture data based on gray values over a predetermined imaginative gamma curve established in accordance with the characteristic of the liquid crystal display panel, stores gray values of corrected RGB gamma curves corresponding to the corrected picture data, and gamma-corrects the raw RGB picture data based on gray values of the stored corrected RGB gamma curves.

None of the applied references teaches or suggest at least these features of the claimed invention.

The Examiner admits Nakai is materially deficient as a reference. The Examiner tries to cure the deficiencies of Nakai by relying on Ryan. However, Ryan is directed towards correcting output of printer systems, for example, col. 5, ll. 14-24, discloses:

output correction is used in order to compensate for various printing characteristics, such as printing mode (forward or reverse), print head characteristics (output level/input level), and the like. Accordingly, each color value in each color plane is input to output correction processing and a corresponding corrected value is thereby produced. It should be noted that, in the preferred embodiment, the resulting corrected values are 8-bit multi-level color values.

Ryan does not teach color correction unit generates corrected RGB picture data based on gray values over a predetermined imaginative gamma curve established in accordance with the characteristic of the liquid crystal display panel, stores gray values of corrected RGB gamma curves corresponding to the corrected picture data" as recited by claim 1. Additionally, Ryan is non-analogous art. For example, Ryan is directed towards printing systems, while the present invention is directed towards liquid crystal displays. Also, the problem to be solved is different, that is, Ryan seeks an output correction as a function of printer mode, which is not a problem of the instant application.

Claim 33 is allowable over the applied references in that claim 1 recites a combination of elements including, for example,

a color correction unit for generating first corrected RGB picture data corresponding to input RGB picture data and based on gray values over a predetermined imaginative gamma cure for outputting second corrected RGB picture data in accordance with the first corrected picture data.

None of the applied references teaches or suggest at least these features of the claimed invention.

Accordingly, Applicants respectfully submit the rejection under § 103(a) be withdrawn as a *prima facie* case of obviousness has not been established.

Claims 5-7, 9 and 10 stand rejected under 35 U.S.C. § 103(a) as being allegedly unpatentable over Nakai in view of Ryan further in view of admitted prior art. Applicants respectfully traverse these rejections.

Claims 5-6 by virtue of their dependency from claim 1 include all the features of claim 1. For similar reasons as discussed above, with respect to the rejection under 35 U.S.C. § 103, Nakai and Ryan fail to teach or suggest all the limitations of claim 1 for reasons as discussed above. Additionally, the alleged admitted prior art fails to cure the deficiencies of Nakai and Ryan. Accordingly, claims 5-6 are allowable by virtue of their dependency from claim 1.

Claim 7 is allowable over the applied references in that claim 7 recites a combination of elements including, for example,

wherein upon receipt of raw RGB picture data corresponding to raw RGB gamma curves, the color correction unit transforms the raw RGB picture data into corrected RGB picture data based on gray values of a predetermined imaginative gamma curve established in accordance with the characteristic of the vertically aligned mode liquid crystal display panel, stores gray values of corrected RGB gamma curves corresponding to the transformed corrected picture data, and gamma-corrects the raw RGB picture data based on gray values over of the stored corrected RGB gamma curves

None of the applied references teach or suggest at least these features of the claimed invention for similar reasons as discussed above. Accordingly, Applicants respectfully submit claim 7 and claims 9-10, which depend from claim 7, are allowable over the cited references.

Claims 11-15, 19-21, 25, and 28-32, 36-39, 41, 44, and 45 stand rejected under 35 U.S.C. § 103(a) as being allegedly unpatentable over Nakai in view of Ryan as applied to claim 1 above and further in view of U.S. Patent No. 5,196,738 issued to Takahara, *et al.* ("Takahara"). Applicants respectfully traverse these rejections.

Claim 11 is allowable over the applied references in that claim 11 recites a combination of elements including, for example,

a control unit, at initial driving, generating corrected picture data corresponding to raw RGB picture data fed from the outside while storing the corrected picture data into a predetermined memory, and after the initial driving, upon receipt of raw RGB picture data from the outside, extracting corrected picture data corresponding to the raw RGB picture data from the memory while transmitting the extracted picture data to the data driver, and generating timing signals for controlling the operation of the scan driver and the data driver while outputting the generated timing signals to the scan driver and the data driver, respectively.

None of the applied references teach or suggest at least these features of the claimed invention for similar reasons as discussed above. Accordingly, Applicants respectfully submit that claim 11 and claims 12-15 and 19-21, which depend from claim 11, are allowable over the applied references.

Claim 25 is allowable over the applied references in that claim 25 recites a combination of elements including, for example,

a control unit, at initial driving, generating corrected picture data corresponding to raw RGB picture data fed from the outside while storing the corrected picture data into a predetermined memory, and after the initial driving, upon receipt of raw RGB picture data from the outside, extracting corrected picture data corresponding to the raw RGB picture data from the memory while transmitting the extracted picture data to the data driver, and generating timing signals for controlling the operation of the scan driver and the data driver while outputting the generated timing signals to the scan driver and the data driver, respectively.

None of the applied references teach or suggest at least these features of the claimed invention.

Accordingly, Applicants respectfully submit that claim 25 is allowable over the applied references.

Claim 28 is allowable over the applied references in that claim 28 recites a combination of elements including, for example,

- (a) sequentially transmitting scanning signals to the gate lines;
- (b) upon receipt of RGB gray scale data for displaying picture images from the outside, establishing RGB gammas based on the RGB gray scale data and predetermined imaginative gamma curves, and generating data voltages based on the established RGB gammas; and
- (c) feeding the data voltages generated at the (b) step to the data lines.

None of the applied references teach or suggest at least these features of the claimed invention.

Accordingly, Applicants respectfully submit that claim 28 and claims 28-32, which depend from claim 28, are allowable over the applied references.

Claim 36 is allowable over the applied references in that claim 36 recites a combination of elements including, for example,

a data driver applying data voltages for representing picture signals to the data lines; and
a color correction unit for generating first corrected RGB picture data corresponding to input RGB picture data and for outputting second corrected RGB picture data in accordance with the first corrected picture data,
wherein the color correction unit comprises:
a first memory to store the first corrected RGB picture data; and
a multi-grayscale unit to output the second corrected RGB picture data adapted to the data driver.

None of the applied references teach or suggest at least these features of the claimed invention.

Accordingly, Applicants respectfully requests withdrawal of the rejection under 35 U.S.C. § 103.

Claim 44 is allowable over the applied references in that claim 44 recites a combination of elements including, for example,

sequentially transmitting scanning signals to the gate lines;
generating first corrected RGB picture data corresponding to input
RGB picture data based on gray values over a predetermined
imaginative gamma curve established in accordance with the
characteristic of the liquid crystal display panel;
outputting second corrected RGB picture data in accordance with
the first corrected picture data; and
supplying the second corrected RGB picture data to the data lines.

None of the applied references teach or suggest at least these features of the claimed invention.

Accordingly, Applicants respectfully requests withdrawal of the rejection under 35 U.S.C. § 103.

Claims 16-17, 22, and 40 stand rejected under 35 U.S.C. § 103(a) as being allegedly unpatentable over Nakai, Ryan, and Takahara as applied to claim 11 above and further in view of U.S. Patent No. 5,777,590 issued to Saxena, *et al.* ("Saxena"). Applicants respectfully traverse these rejections.

Claims 16-17 and 22 by virtue of their dependency from claim 11 include all the features of claim 11. For similar reasons as discussed above, with respect to the rejection under 35 U.S.C. § 103, Nakai, Ryan, and Takahara fail to teach or suggest all the limitations of claim 11. Additionally, Saxena fails to cure the deficiencies of Nakai and Ryan. Accordingly, Applicants

respectfully submit claims 16-17 and 22 are allowable by virtue of their dependency from claim 11.

Claim 18 stands rejected under 35 U.S.C. § 103(a) as being allegedly unpatentable over Ryan, Takahara, and Saxena as applied to claim 17 above and further in view of U.S. Patent Application Publication No. 2001/00045946 issued to Huang, *et al.* ("Huang"). Applicants respectfully traverse these rejections.

Claims 18 by virtue of their dependencies from claim 11 includes all the features of claim 11. For similar reasons as discussed above, with respect to the rejection under 35 U.S.C. § 103, Nakai, Ryan, Takahara, and Saxena fail to teach or suggest all the limitations of claim 11. Additionally, Huang fails to cure the deficiencies of Nakai, Ryan, Takahara, and Saxena. Accordingly, claim 18 is allowable by virtue of its dependency from claim 18.

Claims 26-27 and 42-43 stand rejected under 35 U.S.C. § 103(a) as being allegedly unpatentable over Nakai, Ryan, Takahara as applied to claims 11, 25 and 36 above and further in view of allegedly admitted prior art (p. 1, l. 13 to p. 4, l. 17, and Figs. 1-6). Applicants respectfully traverse these rejections.

Claims 26-27 by virtue of their dependencies from claim 11 includes all the features of claim 11. For similar reasons as discussed above, with respect to the rejection under 35 U.S.C. § 103, Nakai, Ryan, and Takahara fail to teach or suggest all the limitations of claim 11. Additionally, Applicants allegedly admitted prior art fails to cure the deficiencies of Nakai,

Ryan, and Takahara. Accordingly, claims 23-24 are allowable by virtue of the dependency from claim 11.

Claims 26-27 by virtue of their dependencies from claim 11 includes all the features of claim 11. For similar reasons as discussed above, with respect to the rejection under 35 U.S.C. § 103, Nakai, Ryan, and Takahara fail to teach or suggest all the limitations of claim 11.

Additionally, Applicants allegedly admitted prior art fails to cure the deficiencies of Nakai, Ryan, and Takahara. Accordingly, claims 23-24 are allowable by virtue of the dependency from claim 11.

Claims 42-43 by virtue of their dependencies from claim 36 includes all the features of claim 36. For similar reasons as discussed above, with respect to the rejection under 35 U.S.C. § 103, Nakai, Ryan, and Takahara fail to teach or suggest all the limitations of claim 36.

Additionally, Applicants allegedly admitted prior art fails to cure the deficiencies of Nakai, Ryan, and Takahara. Accordingly, claims 42-43 are allowable by virtue of the dependency from claim 36.


CONCLUSION

Applicants believe that a full and complete response has been made to the pending Office Action and respectfully submit that all of the stated objections and grounds for rejection have been overcome or rendered moot. Accordingly, Applicants respectfully submit that all pending claims are allowable and that the application is in condition for allowance.

Should the Examiner feel that there are any issues outstanding after consideration of this response, the Examiner is invited to contact the Applicant's undersigned representative at the number below to expedite prosecution.

Prompt and favorable consideration of this Reply is respectfully requested.

Respectfully submitted,



Hae-Chan Park
Reg. No. 50,114

Date: June 17, 2004

McGuireWoods LLP
1750 Tysons Boulevard
Suite 1800
McLean, VA 22102-4215
Tel: 703-712-5365
Fax: 703-712-5280
HCP:SJH/jeh